

Experimental Assessment of Birefringent Optical Fibres for Sensor Applications

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Abstract. The absorption behaviour of Rhodamine 6G solutions at high and low concentrations were measured using the evanescent field of a birefringent single mode fibre. The measurements were carried out in fibres with a D-shaped side channel close to the fibre core. We designed and fabricated a device enabling the insertion of the test solutions into the channel in 1 mm incremental steps. The fibres were about 10 to 20 cm long and the channel heights and widths varied from 10 μm to 20 μm and 40 μm to 60 μm respectively.